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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER				
ALANKO, ANITA KAREN				
ART UNIT		PAPER NUMBER		
1792				
NOTIFICATION DATE		DELIVERY MODE		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/561,008

Applicant(s)

FORSTNER ET AL.

Examiner

Anita K. Alanko

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36, 40, 44, 46, 47, 49, 50 and 67-69 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 36, 40, 44, 46, 47, 49, 50 and 67-69 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Claim Rejections - 35 USC § 112

Claim 46 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 46 depends from a cancelled claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 40 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Försnel in view of Babko-Malyi (US 2003/0106788 A1) and Carr (US 2008/0099441 A1)

Försnel discloses a method comprising directing, to locally remove a coating (silicon oil residues from metal surfaces, col.4, lines 47-50, since broadly interpreted residues form a coating

that is desired to be removed), the plasma 34 onto the region of the substrate from which the coating is to be removed, wherein the plasma has an effective width determined by the nozzles 24 (Fig.2, effective to remove the coating).

As to claim 67, Försnel fails to disclose the use of a slit-shaped source. It would have been an obvious matter of design choice to use a slit-shaped source, since such a modification would have involved a mere change in the size of a component. A change of size is generally recognized as being within the ordinary level of skill in the art. *In re Dailey*, 357 F.2nd 669, 149 USPQ 1966.

Still further, Babko-Malyi teaches that it is known to change the shapes of openings to either slits and/or holes (paragraph [0038] last line). It would have been obvious to one with ordinary skill in the art to use slits in the method of Försnel in order to direct the plasma in a desired shape to correspond with a desired shape of coating removal, as is useful as taught by Babko-Malyi to yield the predictable result of coating removal.

Further as to claim 67, Försnel fails to disclose rotating the nozzles. Carr teaches that a known technique for plasma processing includes rotating nozzles (step 610, paragraph [0068]) in order to shape the surface of the workpiece as desired. It would have been obvious to rotate the nozzles in the modified method of Försnel because Carr teaches that this is a useful technique for shaping a workpiece as desired with the predictable result of processing that part of the workpiece which is desired to be processed.

As to amended claim 67, Försnel discloses relative movement between the plasma and the workpiece (col.3, lines 20-21), and that the location and size of the surface area to be treated can be controlled by adjusting the position of the workpieces 35 relative to the plasma 100 as

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required (col.5, lines 23-27). Carr teaches that the plasma may be rotated while there is relative movement between the plasma and the substrate [0068]. The shape of the opening, the angle of the plasma and the relative movement all affect the introduction of plasma to the substrate and the type of coating removal achieved, and thus are result-effective variables. It would have been obvious to one with ordinary skill in the art that in the modified method of Försnel to include relative movement between the rotated, slit shaped nozzles and the substrate as cited in order to remove the desired coating as required by the final product desired because the relative movement appears to reflect a result-effective variable which can be optimized. See MPEP 2144.05 IIB.

As to claims 40, since no other description is disclosed in Försnel, it is expected that movement is parallel and normal to the face of the substrate, as cited. Further, Carr teaches relative movement (step 610) which enables processing at desired locations, including the edge.

Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Försnel in view of Babko-Malyi (US 2003/0106788 A1), Carr (US 2008/0099441 A1) and Kobayashi (US 7,332,056 B2).

The discussion of modified Försnel from above is repeated here.

As to claim 46, Försnel fails to disclose a shield. Kobayashi teaches that shields 20, 23 are useful next to substrates in order to achieve uniform processing near the edges of the substrate being processed (col.2, lines 1-11). It would have been obvious to provide a shield as taught by Kobayashi in the method of Försnel in order to improve the uniformity of processing, which increases the yield of the final product.

Claims 36, 44, 49-50, 68-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Försnel in view of Babko-Malyi (US 2003/0106788 A1), Carr (US 2008/0099441 A1) and Siniaguine et al (US 6,238,587 B1).

The discussion of modified Försnel from above is repeated here.

As to claims 68-69, Försnel fails to disclose varying the angle of the plasma jet. It is noted that apparatus limitations, unless they affect the process in a manipulative sense, may have little weight in process claims. *In re Tarczy-Hornoch* 158 USPQ 141, 150 (CCPA 1968); *In re Edwards* 128 USPQ 387 (CCPA 1961); *Stalego v. Heymes* 120 USPQ 473, 478 (CCPA 1959); *Ex parte Hart* 117 USPQ 193 (PO BdPatApp 1957); *In re Freeman* 44 USPQ 116 (CCPA 1940); *In re Sweeney* 72 USPQ 501 CCPA 1947).

Siniaguine teaches that it is useful to vary the angle of the plasma jet relative to the coating to be removed (col.3, lines 27-41) in order to influence the conditions of the plasma flowing over the surface, and thereby influence coating removal. It would have been obvious to one with ordinary skill in the art to vary the angle or pivot as cited in the method of Försnel because Siniaguine teaches that varying the angle is known and useful, and such is expected to yield the predictable result of coating removal.

As to claim 36, Försnel discloses to change a coverage width of plasma and substrate by deactivating or activating plasma beams (col.5, lines 51-53).

As to claim 44, since no other description is disclosed in Försnel, it is expected that movement is parallel and normal to the face of the substrate, as cited. Further, Carr teaches relative movement (step 610) which enables processing at desired locations, including the edge.

Further, as to claim 44, Försnel removes from a face of a substrate, but it would have also been obvious to remove from an edge as cited because it is obvious to remove coatings that are not needed in the final product, such as from the edge.

As to claims 49-50, it would have been obvious to use the method of Försnel to remove the cited coatings because they are conventionally removed by plasma etching and is advantageous in that reactant species can be optimized depending on the type of coating to be removed.

Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Försnel in view of Babko-Malyi (US 2003/0106788 A1), Carr (US 2008/0099441 A1) and Tanaka et al (US 2002/0008082 A1).

The discussion of modified Försnel from above is repeated here.

As to claim 47, Försnel fails to explicitly disclose a discharge device. It is noted that apparatus limitations, unless they affect the process in a manipulative sense, may have little weight in process claims. *In re Tarczy-Hornoch* 158 USPQ 141, 150 (CCPA 1968); *In re Edwards* 128 USPQ 387 (CCPA 1961); *Stalego v. Heymes* 120 USPQ 473, 478 (CCPA 1959); *Ex parte Hart* 117 USPQ 193 (PO BdPatApp 1957); *In re Freeman* 44 USPQ 116 (CCPA 1940); *In re Sweeney* 72 USPQ 501 CCPA 1947).

Tanaka teaches that suctioning or evacuating by-products (by 60a) is useful when using a plasma jet (Fig.2) in order to achieve high accuracy in coating removal. It would have been obvious to use a discharge device in the method of Försnel because Tanaka teaches that it is useful to achieve high accuracy in coating removal.

Response to Amendment

Claims 40 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Försnel in view of Babko-Malyi (US 2003/0106788 A1) and Carr (US 2008/0099441 A1)

Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Försnel in view of Babko-Malyi (US 2003/0106788 A1), Carr (US 2008/0099441 A1) and Kobayashi (US 7,332,056 B2). (It appears that since claim 70 was cancelled, it was intended to cancel claim 46, however, the amendment fails to do this.)

Claims 36, 44, 49-50, 68-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Försnel in view of Babko-Malyi (US 2003/0106788 A1), Carr (US 2008/0099441 A1) and Siniaguine et al (US 6,238,587 B1).

Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Försnel in view of Babko-Malyi (US 2003/0106788 A1), Carr (US 2008/0099441 A1) and Tanaka et al (US 2002/0008082 A1).

The claims remain rejected under the same prior art as in the previous Office Action.

Response to Arguments

Applicant's arguments filed 4/14/09 have been fully considered but they are not persuasive.

Applicant argues that the effective width/area of a plasma is modified by rotating at least one slit shaped nozzle, and this is not taught by the prior art. In response, the prior art in combination teaches relative movement, a slit-shaped nozzle, rotation and angles. It is obvious

to one with ordinary skill in the art to control these as desired because a desired film cannot be removed without first directing the plasma to the desired area to be removed. The relative movement, a slit-shaped nozzle, rotation and angles all affect how the plasma interacts with the surface, and one with ordinary skill in the art would be able to optimize them for best results. To not do so would not be using the tool to its optimized ability, which defeats the advantage of relative movement, nozzle shape, rotation and angles used.

Applicant argues that Carr does not change the effective width of the plasma. In response, in the combination of Försnel modified by Babko-Malyi (US 2003/0106788 A1), Carr (US 2008/0099441 A1) (and Siniaguine et al (US 6,238,587 B1)) – various elements of the plasma processing are taught. One with ordinary skill in the art would recognize that rotating or pivoting a slit-shaped nozzle opening would give different results compared to a circular opening, and would be able to optimize the relative movement in order as cited in the modified method of Försnel to achieve the desired result.

Applicant argues about varying the angle of incidence about an axis parallel or perpendicular to surface. In response, examiner does not understand the difference, since the angle is varied in both instances in the same manner, 45 degrees relative to perpendicular is the same as 45 degrees relative to parallel. As to the processing of the corner of the substrate, this is obvious to one with ordinary skill in the art in order to remove a coating to form the desired final product because the advantage of the method of Försnel is that of relative movement – so movement to desired places such as corners is obvious.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anita K. Alanko whose telephone number is 571-272-1458. The examiner can normally be reached on Mon-Fri until 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Anita K Alanko/
Primary Examiner, Art Unit 1792